

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A ~~method of operating a DC/DC up-down converter, comprising: which has~~
[[~~-~~]]a DC voltage source configured to provide an input voltage; and at least a first and a second output voltage
first and second outputs configured to output first and second output voltages, respectively;
a main switch coupled to the DC voltage source;
[[~~-~~ at least one inductive energy storage means, which is connected with]]an inductance having a first terminal, coupled to a the main switching means and can be connected with switch, and a second terminal, the inductance being configured to provide a coil current; to at least two outputs via switching means
[[~~-~~]]a first output switch coupled in series with the first output and configured to control a direction of the coil current into the first output or into the second output; switching means for providing electrical energy for the first and second output voltages by supplying a coil current
[[~~-~~ a main switching means connected between the inductive energy storage means and a DC voltage source generating the input voltage
-]]a free-wheeling switching means which makes possible the continuation of the switch coupled to the DC voltage source and configured to provide current flow in the inductive means inductance if the main switching means switch is switched off and
[[~~-~~ a control means for selective actuation of all switching means
wherein

-]]a controller configured to control the main, free-wheeling, and first output switches such that:
 - the first output voltage ~~which~~ is lower than the input voltage; [[is present on the first output and
 -]]the second output voltage ~~which~~ is higher than the input voltage [[is present on the second output
 - at least a further switching means for controlling the direction of the coil current into the first output or into the second output is connected in series with the first output, characterized in that the control means
 -]]the controller controls the first output switching means, so switch such that, in the course of during one switching cycle, the coil current flows from the second terminal of the inductance into both ~~output branches~~ outputs; and
 - [[--]]the controller controls the main switch in ~~the~~ a transient state of the up-down converter, so that ~~the~~ an average voltage on the first terminal of the inductance is equal to ~~the~~ a voltage on the second terminal of the inductance.

2. (Currently Amended) ~~A method~~ The DC/DC up/down converter as claimed in claim 1 in which the ~~control means (controller) generates~~ is configured to generate switching phases for the ~~switching means~~ switches and the course of the coil current comprises an up-conversion phase and a down-conversion phase, ~~characterized in that~~ wherein the down-conversion phase of the coil current comprises at least two switching phases.

3. (Currently Amended) ~~A method~~ The DC/DC up/down converter as claimed in claim 2, ~~characterized in that~~ wherein the switching cycle has all the switching phases exactly once.

4. (Currently Amended) ~~A method of operating a~~ DC/DC up-down converter, comprising: which has

[[~~-~~]] a DC voltage source configured to provide an input voltage; and at least a first and a second output voltage

first and second outputs configured to output first and second output voltages, respectively;

[[~~-~~]] at least one inductive energy storage means which is connected with]] an inductance having a first terminal, coupled to a the DC voltage source, and generating in the input voltage and can be connected with a second terminal; to the outputs via the switching means

[[~~-~~]] a first output switching means for providing electrical energy for the first and the second output voltage by supplying a coil current switch coupled in series with the first output and configured to control a direction of the coil current into the first output or into the second output;

[[~~-~~]] a main switching means switch connected between a the second terminal of the inductive energy storage means inductance and the other pole of the DC voltage source, and

[[~~-~~]] a control means (controller) for selectively actuating all switching means configured to control the main and first output switches such that:

wherein

[[~~•~~]] the first output voltage which is lower than the input voltage; is present on the first output and

[[~~•~~]] the second output voltage, which exceeds the input voltage; is present on the second output

[[~~•~~]] at least a further switching means for controlling the direction of the coil current into the first output into the second output is connected in series with the first output

characterized in that]] where the control means (controller) is configured to control:

[[~~-~~ controls]] the first output switching means switch so that in the course of during one switching cycle the coil current flows from the second terminal of the inductance into both output branches outputs at least once; and

[[-- controls]]the main switch in ~~the~~a transient state of the up-down converter so that ~~the~~an average voltage on the second terminal of the ~~coil~~inductance is equal to ~~the~~a voltage on the first terminal ~~thus~~of the inductances, which is equal to the input voltage.

5. (Currently Amended) The DC/DC up/down converter A ~~method~~ as claimed in claim 4, wherein the ~~control means~~controller is configured to generate switching phases for each ~~switching means~~switch and ~~the pattern of~~ the coil current has an up-conversion phase and a down-conversion phase, ~~characterized in that~~wherein the up-conversion phase of the coil current comprises at least two switching phases.

6. (Currently Amended) The DC/DC up/down converter A ~~method~~ as claimed in claim 5, ~~characterized in that~~wherein the switching cycle comprises all switching phases exactly once.

7. (Currently Amended) The DC/DC up/down converter A ~~method~~ as claimed claim 1, ~~characterized in that~~wherein the ~~switching means~~switches are MOSFETs; IGBTs, GTOs or bipolar transistors.

8. (Canceled)

9. (New) The DC/DC up/down converter as claimed in claim 4, further comprising:

a third output configured to produce a third output voltage;
a second output switch connected in series with the third output.

10. (New) The DC/DC up/down converter as claimed in claim 1, further comprising:

a third output configured to produce a third output voltage;
a second output switch connected in series with the third output.

11. (New) A device, comprising:
a first input configured to provide an input voltage;
first and second outputs configured to output first and second output voltages,
respectively;
an inductance coupled to the main switch and configured to provide a coil current;
a first input switch coupled to the inductance;
a first output switch coupled in series with the first output and configured to
control a direction of the coil current into the first output or into the second output;
a controller configured to:
control the first output switch such that, during one switching cycle, the
coil current flows from the second terminal of the inductance into both outputs, and
control the first input switch in a transient state so that an average voltage
on a first terminal of the inductance is equal to a voltage on a second terminal of the inductance.

12. (New) The device of claim 11, further comprising:
a third output configured to produce a third output voltage;
a second output switch connected in series with the third output.

13. (New) The device of claim 11, further comprising a DC voltage source
configured to provide the input voltage to the first input.

14. (New) The device of claim 13, wherein the inductance has a first terminal
directly connected to a first terminal of the DC voltage source and the first input switch is
coupled between the second terminal of the inductance and a second terminal of the DC voltage
source.

15. (New) The device of claim 13, further comprising a second input switch,
the first input switch being coupled between a first terminal of the DC voltage source and the

first terminal of the inductance and the second input switch being coupled between a second terminal of the DC voltage source and the first terminal of the inductance.

16. (New) The device of claim 11, wherein the controller is configured to generate switching phases for the switches and the course of the coil current comprises an up-conversion phase and a down-conversion phase, wherein the down-conversion phase of the coil current comprises at least two switching phases.

17. (New) The device of claim 15, wherein the switching cycle has all the switching phases exactly once.